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REVIEW

Impact of infection outbreak on people with intellectual disabilities: A scoping review

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ABSTRACT

Background: One would assume that infection outbreaks such as the COVID-19 pandemic have a deleterious effect upon the physical, mental, and/or social functioning of people with intellectual disabilities (ID).

Methods: A systematic search of four databases produced 18 articles. General information pertaining to the topics under consideration, information related to infectious diseases and ID were extracted.

Results: All but one of the studies investigated the impact of infection outbreaks on the physical functioning of people with ID. Although in some instances certain studies briefly reflected on the impact of infection outbreaks on mental or social functioning, there was no empirical data available.

Conclusions: There is scarce scientific knowledge on the impact of infection outbreaks on the mental and social functioning of people with ID. This underscores the exigency for further psychosocial research to both explore the impact of infection outbreaks and develop strategies to deal with them in the future.

KEYWORDS

Intellectual disabilities; infection outbreak; COVID-19; health; ICF

According to the International Classification of Functioning, Disability and Health (ICF) framework proposed by the World Health Organization (WHO), health is not defined simply in terms of the absence of disease, but rather encompasses the overall physical, mental, and social functioning of a person (WHO, 2001). In the context of care provision for people with intellectual disabilities (ID), the ICF-framework constitutes a solid basis upon which to provide care and support geared towards the development of good health. This framework explains that manifold personal and environmental factors can either positively or negatively impact upon the health of people with ID. Based on the ICF framework, it is reasonable to assume that the current COVID-19 pandemic places tremendous strain on the health status of people with ID across the globe (WHO, 2020a).

People with ID are considered to be particularly vulnerable to COVID-19 (Landes et al., 2020; Turk et al., 2020; WHO, 2020a), insofar as people with disabilities are generally more likely to have greater health needs, while, simultaneously, experiencing worse outcomes (Armitage & Nellums, 2020; UN News, 2020). As a result of pre-existing comorbidities, people with ID are at an ever greater risk of infections or contracting severe diseases (Armitage & Nellums, 2020; UN News, 2020). This risk is exacerbated further by the fact that people who live in long-term care facilities are at an even higher risk of adverse outcomes and, due to living in close proximity to others, are at a higher risk of infection (WHO, 2020b). Given these aforesaid factors, it is evident that the ongoing COVID-19 crisis has a detrimental impact upon the physical functioning of people with ID.

The increased risk of becoming ill during the COVID-19 crisis necessitates special precautions in the context of care provision for people with disabilities (WHO, 2020b). However, these precautions may negatively affect the mental and social functioning of people with ID. For instance, facilities and day-care activities for people with ID have been temporarily closed across a number of countries. Moreover, therapy and outpatient care has also been prohibited at points, or only allowed to continue under very strict conditions (WHO, 2020b). Given that people with ID often rely on the assistance of others as part of their everyday life and personal care (Armitage & Nellums, 2020), the provision of care under strict conditions is likely

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to impact upon the lives of people with ID. In fact, these measures have been shown to exacerbate pre-existing feelings of loneliness and further decrease the level of self-determination exhibited by people with ID (Embregts et al., 2020). In conjunction with this, the WHO has also warned of the negative consequences of specific measures, such as the use of protective personal equipment and restrictions on visitors and group activities, on the mental health and wellbeing of people with ID (WHO, 2020b). In summary, one can thus assume that the ongoing pandemic and attendant measures can negatively impact upon the physical, mental, and social functioning of people with ID.

Insights into the health-related impact of previous infection outbreaks and related restrictions on people with ID are expedient for understanding how the current COVID-19 pandemic will impact upon people with ID. Given that infection outbreaks can affect the physical, mental, and social functioning of people with ID, there is a need to gather knowledge from medical, pharmacological and psychosocial perspectives. This scoping review was conducted for the purposes of generating such an overview. A scoping review can be described as a systematic literature review that aims to map research within a specific field of interest in terms of its nature, volume, and characteristics (Arksey & O'Malley, 2005). Specifically, the present scoping review was conducted to provide an overview of extant scientific literature examining the physical, mental, and social functioning of people with ID during infection crises, for the explicit purpose of providing directions for future research in the field.

Method

Search strategy

In accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Liberati et al., 2009), four databases (i.e., Embase, PsychINFO, MedLine ALL [i.e., all searched via Ovid], and Google Scholar) were systematically searched with the assistance of an information specialist who has extensive experience in conducting scientific literature searches. To ensure a broad search strategy, search terms pertaining to "*people with ID*" (e.g., intellectual impairment, developmental disorder, mental handicap) were combined with search terms pertaining to "*infection outbreak*" (e.g., general terms such as pandemic, infection outbreak, infectious disease, alongside specific terms such as Corona, Ebola, SARS). Terms that referred to the potential outcomes of infection outbreaks (e.g., psychological and physical wellbeing) were not included in the search strategy in this particular phase of the review. For each database, specific terms and specifications were used in order to ensure that similar searches were conducted. The full search strategy that was applied in PsychINFO is presented in Table 1. English, peer-reviewed articles published during the period from 1st January 2003 (i.e., SARS outbreak) to 25th May 2020 were included in our search.

Study selection

Figure 1 provides an overview of the four consecutive phases (i.e., identification, screening, eligibility, and inclusion) that made up the selection process. First, in the identification phase, all potentially relevant records in the four different databases were identified via employing the search strategy (as illustrated in Table 1). Second, in the screening phase, all duplicates were first removed before we then proceeded to screen all the titles and abstracts of the studies based on the inclusion and exclusion criteria (see Table 2). In order to ensure that this screening was conducted in a systematic fashion, two authors (SN and WvO) independently assessed 20% of the same records based on titles and abstracts, which resulted in a 92% level of agreement. Disagreements were subsequently discussed with the first author (PE) until a complete consensus was achieved, while the inclusion and exclusion criteria were then adjusted when necessary. Next, two of the authors (SN and WvO) each assessed half of the remaining records (i.e., 40% each) based on titles and abstracts. Third, in the eligibility phase, the full-texts of the remaining records were then screened. Once again, two of the authors (SN and WvO) first independently

Table 1. Search strategy adapted to PsychINFO ovid.

(exp Intellectual Disability/ OR exp Developmental Disabilities/ OR exp Mentally Disabled Persons/ OR (((intellectual* OR mental* OR cognitive OR learning) ADJ3 (impair* OR deficien* OR handicap* OR defect* OR disorder* OR disab* OR illness)) OR (developmental ADJ (delay* OR disorder*)) OR (Down* ADJ3 syndrome*)).ab,ti.) AND (Pandemics/ OR Epidemics/ OR exp Coronaviridae Infections/ OR Zika Virus Infection/ OR Zika virus/ OR Ebolavirus/ OR Hemorrhagic Fever, Ebola/ OR Severe Acute Respiratory Syndrome/ OR Coronaviridae infection/ OR Methicillin-Resistant Staphylococcus aureus/ OR (pandemi* OR ((epidemic* OR epidemia* OR outbreak*) ADJ6 (infecti* OR communicable)) OR sars OR mers OR coronavirus* OR corona-virus* OR ebola* OR zika OR ncov OR covid* OR mrsa OR (Emerging ADJ3 (Communicable OR infect*) ADJ3 Disease*) OR severe-acute-respiratory-syndrome OR h1n1 OR h5n1).ab,ti.) NOT (*HIV Infections/ OR (hiv OR aids).ti.)

Note. Similar search strategies were used for Embase, Medline and Google Scholar, with the mere difference that the associated thesaurus terms were used.

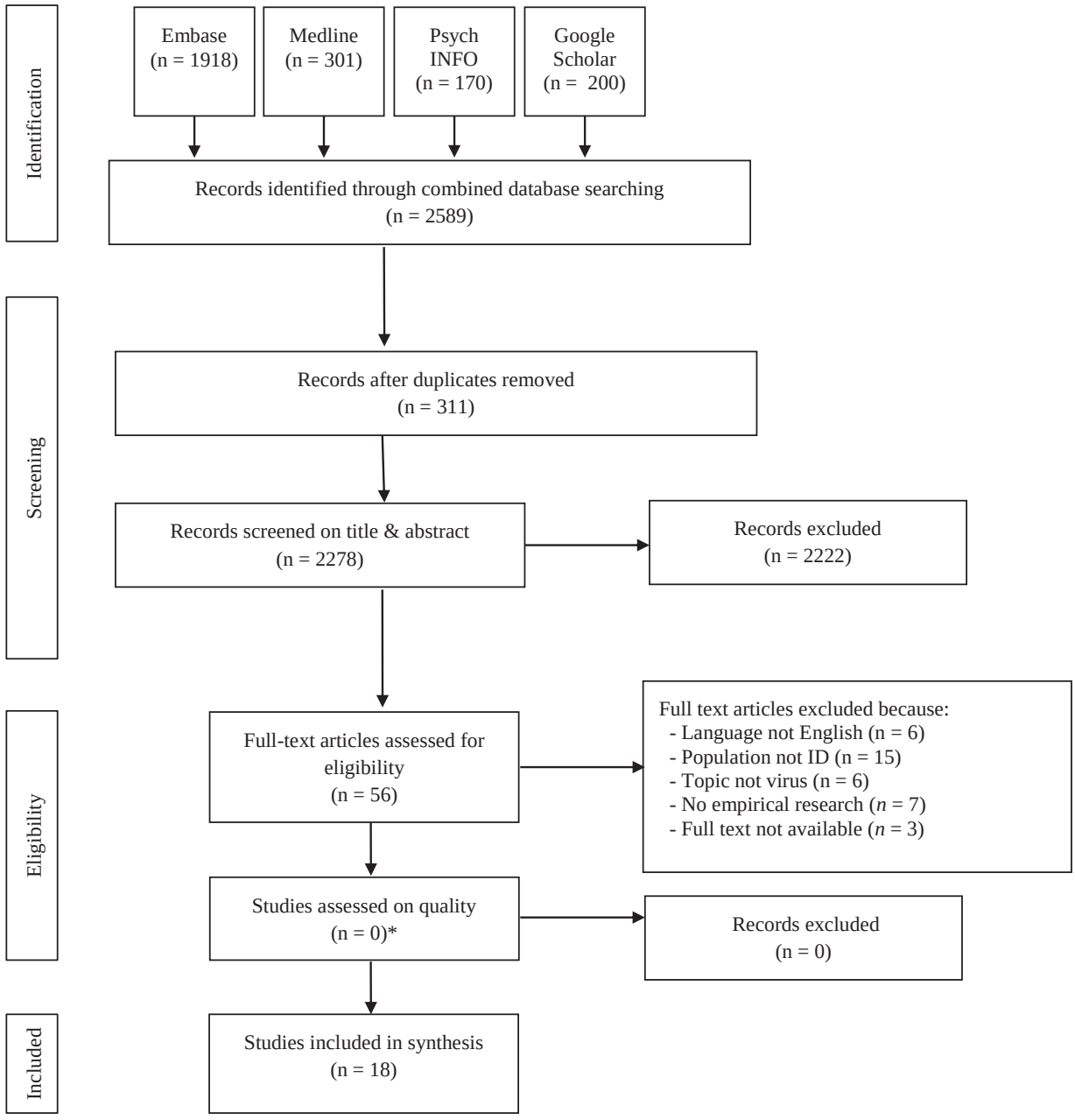

Figure 1. Flowchart of the literature selection process.

Note: The included studies are characterised by a broad variety of designs, methods, and topics from various research domains. This made it impossible to find a reliable quality appraisal tool that may be used for all included studies.

assessed the same 20% of all the records. They agreed in 100% of the cases, although in the event of any doubt, the other author (PE) would have been consulted to establish a consensus. Next, two authors (SN and WvO) each assessed half of the remaining 80% of the full-text articles (i.e., 40% each) based on the inclusion and exclusion criteria (Table 2). Moreover, the bibliographies of all the eligible full-text articles were also screened to identify other potentially relevant studies. Overall, 18 studies were included in the present review. Given that we were conducting a scoping review, we did not assess the quality of the studies. Conducting any such quality assessment would be complicated even further by the sheer heterogeneity of the studies, in terms of their research designs, disciplines/research fields, as well as the level of subject-based expertise that would be required to perform such a task.

Data extraction and analysis

Information on the following variables was extracted from the studies included in the scoping review:

Table 2. Inclusion and exclusion criteria.

Inclusion criteria
- Participants: Persons with an intellectual disability
- Exposure: Infectious diseases (e.g., COVID-19, SARS, Ebola) that:
  - Had a risk of spreading among both health care professionals and service users;
  - Go along with various additional measures that impact may impact the lives of service users;
  - Concern treatment for more than just one of the service-users.
- Outcome: Physical, mental, of social health of persons with ID
- General: English language, peer-reviewed journals

Exclusion criteria
- Participants:
  - Community members
  - Elderly
  - Professionals
  - Family members
  - Persons with disabilities (i.e., not specifying the ID)
- Exposure:
  - Other types of infectious diseases (e.g., Sexually Transmitted Diseases)
  - Other types of epidemics or pandemics (e.g., dementia pandemic)
- General:
  - No original research (e.g., guidelines)
  - Published > January 1st 2003
  - Unpublished articles
  - Grey literature

population, type of virus, country, and methodological characteristics. Moreover, we extracted data that pertained to the principal foci of each study, as well as any additional comments from the authors that related characteristics of ID to both the development and impact of the infection outbreak (e.g., influence of cognitive functioning or aggressive behaviour).

Results

The literature selection process is depicted in Figure 1. The database search generated 2278 records, of which 18 studies were selected for final inclusion and subsequent analysis. Screening of the bibliographies of these articles did not result in any new potential records. An overview of the included studies is provided in Table 3.

General foci and background of the studies

Population

All the included studies solely focused on participants with ID and thus did not include participants who had either alternative or no disabilities. Six studies specifically focused on participants with Down syndrome (Johnston et al., 2015; Keino et al., 2015; Kimura et al., 2020; Kusters et al., 2012; Pérez-Padilla et al., 2010; Simon et al., 2007), three studies concentrated on participants with severe motor and ID (Enright et al., 2006; Matsuda et al., 2013; Yang et al., 2014), one focused on participants with visual and ID (Fanoy et al., 2009), one on participants with a range of functional and cognitive disabilities (Lim et al., 2014), while the remaining seven studies only referred to the participants as "people with ID" (Datta et al., 2012; Gilad et al., 2006; Leung et al., 2010; Nishise et al., 2010; Riabi, 2019; Tummers et al., 2020; Yamazaki et al., 2017). One study comprised entirely of female participants (Datta et al., 2012).

Infectious diseases

The included research encompassed a broad range of outbreaks of infectious diseases across the globe. Most of the studies investigated virus outbreaks: H1N1 (Kusters et al., 2012; Pérez-Padilla et al., 2010), Varicella (Enright et al., 2006; Leung et al., 2010), human metapneumovirus (hMPV) (Matsuda et al., 2013; Yang et al., 2014), Respiratory syncytial virus (Kimura et al., 2020), human coronavirus (HCoVs)-OC43 (Simon et al., 2007), influenza (Yamazaki et al., 2017), and COVID-19 (Tummers et al., 2020). Other studies investigated either bacterial outbreaks, such as MRSA (Fanoy et al., 2009; Gilad et al., 2006; Johnston et al., 2015; Keino et al., 2015), cholera (Datta et al., 2012) and MDR organisms (Lim et al., 2014) or parasite outbreaks, such as Entamoeba histolytica (Nishise et al., 2010) and Scabies (Riabi, 2019).

Countries

Six studies were conducted in Japan (Keino et al., 2015; Kimura et al., 2020; Matsuda et al., 2013; Nishise et al., 2010; Yamazaki et al., 2017; Yang et al., 2014), three in the Netherlands (Fanoy et al., 2009; Kusters et al., 2012; Tummers et al., 2020), two in the USA (Johnston et al., 2015; Leung et al., 2010), one in Mexico (Pérez-Padilla et al., 2010), one in Israel (Gilad et al., 2006), one in Ireland (Enright et al., 2006), one in Iran (Riabi, 2019), one in India (Datta et al., 2012), one in Germany (Simon et al., 2007), and one in Australia (Lim et al., 2014).

Methodological characteristics

With the exception of the Fanoy et al. (2009) study, which examined a virus outbreak using qualitative sources (e.g., assessments from a multidisciplinary outbreak team), all of the studies adopted a quantitative design and utilised a broad range of data-gathering methods and statistical techniques. Aside from participating in medical examinations (e.g., participating in a blood draw to assess infection values), none of the studies reported the opinions or emotions of people with ID concerning the virus outbreak and related measures.

Table 3. Overview of the main characteristics of the included studies.

Author	Year	Country	Title	Study design	Disability	Virus/disease
Enright, Mc Mahon, & Washington	2006	Ireland	Varicella outbreak in a residential home	Quantitative: examined the children's medical and nursing charts	Severe physical and intellectual	Varicella
Datta, Ramakrishnan, & Murhekar	2012	India	A rapidly-progressing outbreak of cholera in a shelter-home for mentally-retarded females, Amta-II block, Howrah, West Bengal, India	Quantitative: retrospective cohort study	Intellectual disability	Cholera
Fanoy, Helmhout, van der Vaart, Weijdema, van Santen-Verheuvel, Thijsen, de Neeling, van Wamel, Maňásková, & Kingma-Thijssen	2009	The Netherlands	An outbreak of non-typeable MRSA within a resedential facility	Qualitative study: descriptive	Visual and intellectual disability	Non-typeable MRSA
Gilad, Borer, Smolyakov, Riesenberg, Schlaeffer, & Levy	2006	Israel	Impaired neutrophil functions in the pathogenesis of an outbreak of recurrent furunculosis caused by methicillin-resistant Staphylococcus aureus among mentally retarded adults	Quantitative: group comparisons	Intellectual disability	MRSA
Johnston, Kaplan, Mason, & Hulten	2015	USA	Characterization of Staphylococcus aureus infections in children with Down syndrome	Quantitative Retrospective epidemiologic study	Down syndrome	MRSA
Keino, Tsuzuki, Mori, Kakuage, Nakano, Asoh, Mori, Kinoshita & Yamamoto	2015	Japan	Infective endocarditis associated with acute leukemia: Report of two cases	Quantitative: two case studies, medical records	Down Syndrome (one case)	MSSA
Kimura, Takeuchi, & Kawakami	2020	Japan	Utilization and efficacy of palivizumab for children with Down syndrome	Quantitative: comparison with and without palivizumab prophylaxis	Down Syndrome	Respiratory syncytial virus (RSV)
Kusters, Bok, Bolz, Huiskens, Peeters, & de Vries	2012	The Netherlands	Influenza A/H1N1 Vaccination Response Is Inadequate in Down Syndrome Children When the Latest Cut-off Values Are Used	Quantitative: comparison of antibodies in vaccinated and unvaccinated children	Down Syndrome	H1N1
Leung, Kudish, Wang, Moore, Gacek, Radford, Lopez, Sosa, Schmid, Cartter, & Bialek	2010	USA (Connecticut)	A 2009 Varicella Outbreak in a Connecticut Residential Facility for Adults with Intellectual Disability	Quantitative study: case investigation and laboratory testing	Intellectual disability	Varicella
Lim, Cheng, Kennon, Spelman, Hale, Melican, Sidjabat, Paterson, Kong, & Peleg	2014	Australia	Prevalence of multidrug-resistant organisms and risk factors for carriage in long-term care facilities: A nested case-control study	Quantitative: point prevalence study and nested case-control study	Functional and intellectual disability	MDR organisms
Matsuda, Nakamura, Hirano, Kiyota, Omura, Suzuki, Noda, & Kimura	2013	Japan	Characteristics of Human Metapneumovirus Infection Prevailing in Hospital Wards Housing Patients with Severe Disabilities	Quantitative: virus detection	Severe motor and intellectual disabilities	HMPV
Nishise, Fujishima, Kobayashi, Otani, Nishise, Takeda, & Kawata	2010	Japan	Mass infection with Entamoeba histolytica in a Japanese institution for individuals with mental retardation: Epidemiology and control measures	Quantitative: intergroup differences	Intellectual disability	Entamoeba histolytica
Pérez-Padilla, Fernández, García-Sancho, Franco-Marina, Aburto, & López-Gatell, and Ietza Bojórquez	2010	Mexico	Pandemi (H1N1) 2009 virus and down syndrome patients	Quantitative: Retrospectieve comparison of database	Down Syndrome	H1N1
Riabi	2019	Iran	The Outbreak of Classic and Norwegian Type Scabies, in Mentally Handicapped Persons in a Rehabilitation Centre-Iran	Quantitative: Descriptive cross-sectional study	Intellectual disability	Scabies
Simon, Völz, Fleischhack, Tillman, Müller, Bode, & Schildgen	2007	Germany	Human Coronavirus OC43 Pneumonia in a Pediatric Cancer Patient With Down Syndrome and Acute Lymphoblastic Leukemia	Quantitative: case report	Down syndrome	Human coronavirus (HCoVs)-OC43
Tummers, Catal, Tobi, Tekinerdogan, & Leusink	2020	The Netherlands	Coronaviruses and people with intellectual disability: An exploratory data analysis	Quantitative: meta-analyses of the literature	Intellectual disability	COVID-19
Yamazaki, Goto, Iwanami, Hama, Fujiwara, Takahashi, Sekiguchi, Chang, & Yamazaki	2017	Japan	Outbreaks of influenza B infection and pneumococcal pneumonia at a mental health facility in Japan	Quantitative: case report	Intellectual disability	Influenza B infectie & pneumococcal pneumonia
Yang, Suzuki, Watanabe, Okamoto, Ohmi, Huang, Nishimura	2014	Japan	Outbreak of Human Metapneumovirus Infection in a Severe Motor-and-Intellectual Disabilities Ward in Japan	Quantitative: retrospective analyses of outbreak	Severe motor and Intellectual Disabilities	metapneumovirus (hMPV)

Topics

All except one of the included studies investigated virus outbreaks from a medical perspective, and, as such, primarily focused on the physical functioning of participants with ID during infection outbreaks. While some of these studies (Datta et al., 2012; Fanoy et al., 2009; Kimura et al., 2020; Leung et al., 2010; Lim et al., 2014; Matsuda et al., 2013; Nishise et al., 2010; Pérez-Padilla et al., 2010; Riabi, 2019; Yang et al., 2014) did draw attention to the potential impact of infection outbreaks on the mental and social functioning of people with ID in their concluding remarks, there were no studies that specifically investigated the impact of virus outbreaks on the mental and social functioning of people with ID.

Most studies were published in medical journals specialising in infectious diseases (Fanoy et al., 2009; Gilad et al., 2006; Johnston et al., 2015; Kusters et al., 2012; Leung et al., 2010; Matsuda et al., 2013; Nishise et al., 2010; Pérez-Padilla et al., 2010; Yamazaki et al., 2017; Yang et al., 2014) (n=10). More specifically, three studies were published in paediatric journals (Keino et al., 2015; Kimura et al., 2020; Simon et al., 2007), two were published in general-medical journals (Enright et al., 2006; Riabi, 2019), one in a global-health journal, and one in a specialised-chemotherapy journal (Lim et al., 2014). Only Tummers et al. (2020) study was published in a non-medical journal dedicated to ID.

The medically-oriented studies primarily framed or investigated the virus outbreak in the context of residential facilities for people with disabilities (Datta et al., 2012; Enright et al., 2006; Fanoy et al., 2009; Gilad et al., 2006; Leung et al., 2010; Matsuda et al., 2013; Nishise et al., 2010; Riabi, 2019; Yamazaki et al., 2017; Yang et al., 2014). Some of these particular studies focused on reporting the outbreak source or index case (Datta et al., 2012; Enright et al., 2006; Fanoy et al., 2009; Leung et al., 2010; Matsuda et al., 2013; Nishise et al., 2010; Riabi, 2019; Yamazaki et al., 2017). Second, several studies examined the transmission of the virus throughout the setting by testing service users and support staff (Datta et al., 2012; Fanoy et al., 2009; Gilad et al., 2006; Leung et al., 2010; Matsuda et al., 2013; Nishise et al., 2010; Riabi, 2019; Yamazaki et al., 2017; Yang et al., 2014), by investigating the personal records of service users (Enright et al., 2006), via conducting environmental testing of the beds and belongings of case patients (Leung et al., 2010), or by testing the drinking water (Datta et al., 2012). Third, one study reported four risk factors identified by support staff as being relevant to the infection outbreak (i.e., washing clothes of the disabled service users together, sharing towels between patients, sharing bathroom supplies, sleeping in a common bed) (Riabi, 2019). Finally, several studies described outbreak control measures (Fanoy et al., 2009; Gilad et al., 2006; Leung et al., 2010; Nishise et al., 2010; Riabi, 2019; Yamazaki et al., 2017), which concerned: the isolation of case patients (Leung et al., 2010; Riabi, 2019), isolation of non-case patients living in the same unit as case patients (Leung et al., 2010), checks of staff immunity and vaccination of staff (Leung et al., 2010), more strict hygiene rules such as hand washing or providing drinking water (Fanoy et al., 2009; Nishise et al., 2010; Riabi, 2019), mandatory use of gloves, aprons and surgical masks by support staff when in contact with infected service users (Fanoy et al., 2009), restricted social contact (Fanoy et al., 2009), staff training (Riabi, 2019), and drug treatment (Fanoy et al., 2009; Gilad et al., 2006; Nishise et al., 2010; Riabi, 2019; Yamazaki et al., 2017).

Notwithstanding outbreaks in residential facilities, other topics considered in the studies concerned the investigation of prevalence rates (Lim et al., 2014; Pérez-Padilla et al., 2010), epidemiology (Johnston et al., 2015), vaccination (Kusters et al., 2012), preventative medication (Kimura et al., 2020), and descriptive medical case reports (Keino et al., 2015; Simon et al., 2007).

Finally, one study reported on the COVID-19 Open Research Dataset (CORD-19) and suggested how this database can subsequently be used to investigate the consequences of a virus outbreak for people with ID, in terms of mental functioning, viral diseases, diagnoses and treatments, maternal care and pediatrics, as well as genetics (Tummers et al., 2020).

Remarks related to ID

Given the lack of empirical data on the mental and social functioning of people with ID during infection outbreaks in the studies included in the scoping review, any information pertaining specifically to people with ID was collected in order to generate insights into how virus outbreaks specifically impact upon people with ID. Some studies did include footnotes that drew attention to how virus outbreaks could impact upon participants' ID. For example, Leung and colleagues posited that the vulnerability towards infections found in people in long-term care may derive from reduced interpersonal contact during childhood and their limited opportunities to build immunity (Leung et al., 2010). Moreover, viruses are expected to be easily transmitted within long-term care facilities due to the large numbers of visitors and support workers present there

(Matsuda et al., 2013; Yang et al., 2014). With respect to people with Down syndrome, it is well established that they are generally more vulnerable to various diseases, such as respiratory diseases (Kimura et al., 2020; Pérez-Padilla et al., 2010). Regarding behavioural problems, the aggressive behaviour exhibited by some people with more profound disabilities can potentially hinder a proper medical investigation (Riabi, 2019), while behaviours such as faecal play or pica can also cause infections (Nishise et al., 2010).

A few studies briefly alluded to the alleged impact of infection outbreaks on the social and mental functioning of participants with ID. For example, Datta and colleagues indicated that unaffected females had improved cognitive functioning and appeared to have better hygiene, which, in turn, lowered their chances of becoming infected (Datta et al., 2012). Leung and colleagues reported that, despite their level of functioning, participants with ID did not all have the capacity to follow infection control practices (Leung et al., 2010). In addition to this, restrictions on social contact were also found to be more difficult to maintain over longer periods of time for participants with ID (Fanoy et al., 2009; Lim et al., 2014). Moreover, service users with ID found the use of gloves, surgical masks and aprons by staff when washing and clothing them to be threatening (Fanoy et al., 2009). The authors would like to once again stress that the information discussed above is merely a summary of the reflections cited in the studies as opposed to an analysis of empirical data.

Discussion

The current COVID-19 pandemic can affect the physical, mental, and social functioning of people with ID. Therefore, there is an urgent need to collate knowledge from medical, pharmacological and psychosocial perspectives. In accordance with the ICF framework, the aim of the current scoping review was to provide an overview of extant scientific literature examining the impact of infection outbreaks on the physical, mental, and social functioning of people with ID, in order to provide directions for future research.

In the current review, all but one of the included studies investigated the impact of infection outbreaks on people with ID from a largely medical perspective, with a clear focus on physical functioning. Table 3 provides both an overview of extant literature in this field and additional details on the studies included in the scoping review. Although several studies briefly reflected upon the impact of virus outbreaks on the mental or social functioning of participants with ID, no study specifically focused on how virus outbreaks affected the mental and social functioning of people with ID. Some of these reflections underscored the fact that "the use of gloves, surgical masks, and aprons during washing and clothing" was perceived as threatening by people with ID (Fanoy et al., 2009), and that "restricting social contact" might affect the social functioning of people with ID (Fanoy et al., 2009; Lim et al., 2014). However, the evidence-base for how virus outbreaks impact upon the mental and social functioning of people with ID is weak at best. Finally, one study (Tummers et al., 2020) posited how the CORD-19 database can subsequently be used to examine how virus outbreaks impact, among other things, on the mental functioning of people with ID.

There are several limitations of this scoping review that must be addressed. First, we did not conduct a quality assessment of the included studies. The fact that the included studies were characterised by a broad variety of research designs, methods, and topics encompassing a variety of research domains made it impossible to find a reliable quality appraisal tool that could be used for all the studies. Furthermore, we did not conduct a quality assessment, because we wanted to provide a broad overview of all of the studies that examined the physical, mental, and social functioning of people with ID during infection outbreaks, irrespective of their methodological rigour or robustness. Second, the remarks related to ID that were formulated in the results section were based on information from either the discussion sections or cursory remarks from footnotes or the results sections of the included studies. Consequently, these findings *do not* concern the key results of the presented research, and thus one must exercise caution when seeking to interpret and generalise these findings. However, given the lack of empirical data on the topic of mental and social functioning, these cursory remarks are nevertheless expedient in terms of raising some interesting avenues for future studies to investigate.

In light of the fact that health is defined in the ICF-framework as the complete physical, mental, and social functioning of a person, these three domains must all be taken into consideration when providing high-quality care to people with ID (WHO, 2001). Given the immense pressure placed on these three domains of functioning for people with ID by the ongoing COVID-19 pandemic, it is critically important to generate knowledge in this area. However, based on the present scoping review, we can definitively conclude that there is currently a relative dearth of scientific knowledge on this topic, especially concerning how infection outbreaks impact upon the mental and social functioning of people with ID. This lacuna highlights the urgent need for further psychosocial research in this field. An

additional point that warrants attention is the fact that the vast majority of research identified via our systematic search was based upon quantitative analyses. More qualitative research in this field would add more in-depth and richer insight into how people with ID experience infection outbreaks. The current crisis must be seized upon in order to conduct research focusing on how it impacts upon the health of everyone. By so doing, research can help to identify strategies for dealing with a possible future wave of COVID-19 or future infection outbreaks. Investigating health, not merely in terms of the absence of disease but rather as the complete physical, mental, and social functioning of a person, should constitute the starting point for future research and practice on caring for people with ID during infection outbreaks.

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Disclosure statement

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